

## DAFTAR PUSTAKA

1. Kartika Rachmadini A, Poerwantoro B, Arifandi F. Terapi Hiperbarik Sebagai “Penunda” Penuaan Kulit Ditinjau dari Kedokteran dan Islam. *Cerdika J Ilm Indones.* 2023;3(1):57–62.
2. Sahu G, Sahu S, Sharma H, Kumar Jha A. A Review of Current and Novel Trends for Anti-Ageing Formulation. *Int J Pharm Chem Biol Sci.* 2014;4(1):118–25.
3. Marzuki NHC, Wahab RA, Hamid MA. An overview of nanoemulsion: Concepts of development and cosmeceutical applications. *Biotechnol Biotechnol Equip.* 2019;33(1):779–97.
4. Bjørklund G, Shanaida M, Lysiuk R, Butnariu M, Peana M, Sarac I, et al. Natural Compounds and Products from an Anti-Aging Perspective. *Molecules.* 2022;27(20):1–29.
5. Venkatachalam K, Charoenphun N, Srean P, Yuwanatemiya V, Pipatpanukul C, Pakkechai K, et al. Phytochemicals, Bioactive Properties and Commercial Potential of Calamondin (*Citrofortunella microcarpa*) Fruits: A Review. *Molecules.* 2023;28(8):1–18.
6. Angelo G. Flavonoids and Skin Health. Germany: Linus Pauling Institutue; 2012.
7. Petruk G, Giudice R Del, Rigano MM, Monti DM. Antioxidants from plants protect against skin photoaging. *Oxid Med Cell Longev.* 2018;2018.
8. Pullar JM, Carr AC, Vissers MCM. The roles of vitamin C in skin health. *Nutrients.* 2017;9(8).
9. Zou Y, Zhang H, Zheng L. Physicochemical characteristics of (*Citrus microcarpa*) from Hainan. *Asian Agric Res.* 2020;12(12):58–62.
10. Rezky Effendi. Analisis komponen Kimia Minyak Atsiri dari Kulit Buah Jeruk Kasturi (*Citrus microcarpa* Bunge) dan Aktivitas Antibakterinya. Universitas Andalas; 2019.
11. Medeleanu ML, Fărcaş AC, Coman C, Leopold L, Diaconeasa Z, Socaci SA. Citrus essential oils – Based nano-emulsions: Functional properties and potential applications. *Food Chem X.* 2023;20.
12. McClements DJ. Nanoemulsions versus microemulsions: Terminology, differences, and similarities. *Soft Matter.* 2012;8(6):1719–29.
13. Zulfa, E., Novianto, D., & Setiawan D. Formulasi Nanoemulsi Natrium Diklofenak Dengan Variasi Kombinasi Tween 80 Dan Span 80: Kajian Karakteristik Fisik Sediaan. *Media Farm Indones.* 2019;14(1):1471–7.

14. Zubaydah WOS, Indalifiany A, Yamin, Suryani, Munasari D, Sahumena MH, et al. Formulasi dan Karakterisasi Nanoemulsi Ekstrak Etanol Buah Wualae (*Etlingera elatior* (Jack) R.M. Smith). *J Ilmu Kefarmasian* . 2023;1(1):22–37.
15. Hou X, Sheng JJ. Properties, preparation, stability of nanoemulsions, their improving oil recovery mechanisms, and challenges for oil field applications—A critical review. *Geoenergy Sci Eng*. 2023;221(August 2022).
16. Rowe RC, Sheskey PJ, Quinn ME. *Handbook of Pharmaceutical Excipients Sixth Edition*. USA: Pharmaceutical Press and American Pharmacists Association; 2009.
17. Bergfeld WF, Donald V, Hill RA, Klaassen CD, Liebler DC, Marks JG, et al. Safety Assessment of Polysorbates as Used in Cosmetics. *Cosmet Ingrd Rev*. 2015;
18. Azzahra D. Optimasi Formulasi Serum Kosmetik Mengandung Avocado Oil dan Ekstrak Rimpang Kunyit Talerang (*Hedychium coronarium* J. Koenig) Sebagai Anti-Flek. Universitas Andalas; 2021.
19. Wahyuningsih I, Putranti W. Optimaziton of Tween 80 and Polyethyleneglycol 400 for Black Cumin Seed Oil in Self Nanoemulsifying Drug Delivery System (SNEDDS) Formula. *Pharmacy*. 2015;12(02):223–41.
20. Dhaval M, Panjwani M, Parmar R, Soniwala MM, Dudhat K, Chavda J. Application of Simple Lattice Design and Desirability Function for Formulating and Optimizing SMEDDS of Clofazimine. *J Pharm Innov*. 2021;16(3):504–15.
21. Farabi K, Subaidah WA, Hanifa NI. Optimasi Pelarut Pada Ekstraksi Senyawa Fenolik Dari Daun Kelor (*Moringa oleifera* L.) Menggunakan Simplex Lattice Design. *J Kedokt Unram*. 2023;12(1):1258–64.
22. Nguyen TNT, Huynh TNN, Tran VT, Dang CH, Hoang TKD, Nguyen TD. Physicochemical characterization and bioactivity evaluation of essential oils from *Citrus microcarpa* Bunge leaf and flower. *J Essent Oil Res*. 2018;30(4):285–92.
23. B.Sarwono. Jeruk dan Kerabatnya. Jakarta: Penebar Swadaya; 1995.
24. Sulyanti E, Monika Ulindari R. Aktivitas Air Rebusan Beberapa Kulit Jeruk (*Citrus* spp) untuk Menekan Pertumbuhan *Colletotrichum gloeosporioides* pada Tanaman Buah Naga secara In Vitro. 2019;3(2):56–64.
25. Web FF. *Citrus X microcarpa* [Internet]. A Singapore Government Agency Website. 2023.

26. Irsyam ASD, Chikmawati T. Peninjauan Ulang Marga Citrus (Rutaceae) di Kawasan Madura. *Floribunda J Sist Tumbuh*. 2015;5(3):82–91.
27. Bhat R, Kamaruddin NSBC, Min-Tze L, Karim AA. Sonication improves kasturi lime (*Citrus microcarpa*) juice quality. *Ultrason Sonochem*. 2011;18(6):1295–300.
28. Palazzolo E, Armando Laudicina V, Antonietta Germanà M. Current and Potential Use of Citrus Essential Oils. *Curr Org Chem*. 2013;17(24):3042–9.
29. Lestari AI. Atsiri Oil Potential of Peel of Kaffir Lime, Lime, and Calamansi Orange as Antioxidant and Antibacteria. *Biosci J Ilm Biol*. 2023;11(1):203.
30. Effendi VP, Widjanarko SB. Distilasi dan Karakterisasi Minyak Atsiri Rimpang Jeringau (*Acorus calamus*) dengan Kajian Lama Waktu Distilasi dan Rasio Bahan: Pelarut. *J Pangan dan Agroindustri*. 2014;2(2):1–8.
31. Sastrohamidjojo H. Kimia Minyak Atsiri. Yogyakarta: Gadjah Mada University Press; 2019.
32. Hesham H. A.Rassem, Nour AH, Yunus RM. Techniques for extraction of essential oils from plants: A review. *Aust J Basic Appl Sci*. 2016;10(16):117–27.
33. Armando R. Memproduksi 15 Jenis Minyak Atsiri Berkualitas. Depok: Penebar Swadaya; 2009.
34. Larasati AG, Purba FF, Kusuma IW, Kuspradini R. H. Sifat Fisiko-Kimia dan Aktivitas Antimikroba Minyak Atsiri Tumbuhan *Actinodaphne glomerata*. *Teknotan*. 2023;17(2):137.
35. Jugreet BS, Suroowan S, Rengasamy RRK, Mahomoodally MF. Chemistry, bioactivities, mode of action and industrial applications of essential oils. *Trends Food Sci Technol*. 2020;101(September 2019):89–105.
36. Kale SN, Deore SL. Emulsion micro emulsion and nano emulsion: A review. *Syst Rev Pharm*. 2017;8(1):39–47.
37. Malode MGP, Chauhan SA, Bartare SA, Malode LM, Manwar J V, Bakal RL. a Critical Review on Nanoemulsion: Advantages, Techniques and Characterization. *J Appl Pharm Sci Res*. 2022;4(3):6–12.
38. Verma S, Kumar N, Kumar U, Jain G. Nanoemulsion: An Exceptional Mode For Delivery of Poorly Soluble Drug. *World J Pharm Pharm Sci*. 2018;7(2):374–92.
39. McClements DJ, Jafari SM. General Aspects of Nanoemulsions and Their Formulation. *Nanoemulsions: Formulation, Applications, and Characterization*. Elsevier Inc.; 2018. 3–20 p.

40. Chellapa P, Ariffin FD, Eid AM, Almahgoubi AA, Mohamed AT, Issa YS, et al. Nanoemulsion For Cosmetic Application. *Eur J Biomed Pharm Sci*. 2016;(June).
41. Panjaitan R, Ni'mah S, Romdhonah R, Annisa L. Pemanfaatan Minyak Biji Labu Kuning (*Cucurbita moschata* Durch) Menjadi Sediaan Nanoemulsi Topikal Sebagai Agen Pengembangan Cosmetical Anti Aging. *Khazanah*. 2015;7(2):61–81.
42. Sondari D, Tursiloadi S. The effect of surfactant on formulation and stability of nanoemulsion using extract of *Centella asiatica* and *Zingiber officinale*. *AIP Conf Proc*. 2018;2049.
43. Widyaningrum I, Triyoga EF, Wibisono N. Type of Cosurfactant Effects on Particle Size in Nanoemulsion Drug Delivery Systems. 2023;2(9):3811–20.
44. Jaiswal M, Dudhe R, Sharma PK. Nanoemulsion: an advanced mode of drug delivery system. *3 Biotech*. 2015;5(2):123–7.
45. Amin N, Das B. A Review on Formulation and Characterization of Nanoemulsion. *Int J Curr Pharm Res*. 2019;11(4):42–6.
46. Chuesiang P, Siripatrawan U, Sanguandekul R, McLandsborough L, Julian McClements D. Optimization of cinnamon oil nanoemulsions using phase inversion temperature method: Impact of oil phase composition and surfactant concentration. *J Colloid Interface Sci*. 2018;514:208–16.
47. Williams AC, Barry BW. Chemical Permeation Enhancement. New York: CRC Press; 2007.
48. Dabetic NM, Todorovic VM, Djuricic ID, Antic Stankovic JA, Basic ZN, Vujovic DS, et al. Grape Seed Oil Characterization: A Novel Approach for Oil Quality Assessment. *Eur J Lipid Sci Technol*. 2020;122(6):1–10.
49. Martin ME, Grao-Cruces E, Millan-Linares MC, Montserrat-De la Paz S. Grape (*Vitis vinifera* L.) seed oil: A functional food from the winemaking industry. *Foods*. 2020;9(10):1–20.
50. Harissya Z, Setiorini A, Rahayu M, Supriyanta B, Asbath, Mahata LE, et al. Ilmu Biomedik Untuk Perawat. Correspondencias & Análisis. Jawa Tengah: Eureka Media Aksara; 2023.
51. Kalangi SJR. Histofisiologi Kulit. *J Biomedik*. 2014;5(3):12–20.
52. Sari WP, Gaya ML, Irianto G, Karisma N. Managemen Topikal *Anti-Aging* pada Kulit. *Medula*. 2019;9(2):237–43.
53. Jap CA, Pertiwi AS, Andrew J, Kedokteran F, Tarumanagara U. Efikasi Suplementasi Kolagen Dalam Mencegah Tanda Penuaan. *Heal Inf J Penelit*. 2023;15:1–11.

54. Sangsuwan W, Asawanonda P. Four-weeks daily intake of oral collagen hydrolysate results in improved skin elasticity, especially in sun-exposed areas: a randomized, double-blind, placebo-controlled trial. *J Dermatolog Treat.* 2021;32(8):991–6.
55. Ahmed IA, Mikail MA, Zamakshshari N, Abdullah ASH. Natural anti-aging skincare: role and potential. *Biogerontology.* 2020;21(3):293–310.
56. Rajagopalan P, Jain AP, Nanjappa V, Patel K, Mangalaparthi KK, Babu N, et al. Proteome-wide changes in primary skin keratinocytes exposed to diesel particulate extract—A role for antioxidants in skin health. *J Dermatol Sci.* 2018;91(3):239–49.
57. Kowalska H, Czajkowska K, Cichowska J, Lenart A. What's new in biopotential of fruit and vegetable by-products applied in the food processing industry. *Trends Food Sci Technol.* 2017;67:150–9.
58. Ganceviciene R, Liakou AI, Theodoridis A, Makrantonaki E, Zouboulis CC. Skin anti-aging strategies. *Dermatoendocrinol.* 2012;4(3).
59. Charissa M, Djajadisastra J, Elya B. Uji Aktivitas Antioksidan dan Penghambatan Tirosinase serta Uji Manfaat Gel Ekstrak Kulit Batang Taya (*Nauclea subdita*) terhadap Kulit. *J Kefarmasian Indones.* 2017;6(2):98–107.
60. Azmi N, Hashim P, Hashim DM, Halimoon N, Nik Majid NM. Anti-elastase, anti-tyrosinase and matrix metalloproteinase-1 inhibitory activity of earthworm extracts as potential new anti-aging agent. *Asian Pac J Trop Biomed.* 2014;4(Suppl 1):S348–52.
61. Jusri R, Widodo WS, Widowati W, Armansyah A, Sormin DE, Fachrial E, et al. Comparison of Antioxidant and Anti-hyaluronidase Potentials of Pineapple Core Extract (*Ananas comosus* (L.) Merr.) and Luteolin. *Maj Kedokt Bandung.* 2019;51(2):63–9.
62. Oktaviana SM, Hajrin W, Hanifa NI. Solvent optimization of flavonoid extraction from *Moringa oleifera* L. using simplex lattice design. *Acta Pharm Indones Acta Pharm Indo.* 2022;10(1):5271.
63. Sopyan I, Zuhrotun A, Hidayat Rifky I. *Design-Expert* Sebagai Alat Optimasi Formulasi Sediaan Farmasi. *Maj Farmaksetika.* 2021;6(1):99–120.
64. Setyawan EI, Rohman A, Setyowati EP, Nugroho AK. The combination of simplex lattice design and chemometrics in the formulation of green tea leaves as transdermal matrix patch. *Pharmacia.* 2021;68(1):275–82.
65. Ramadhani RA, Riyadi DHS, Triwibowo B, Kusumaningtyas RD. Review Pemanfaatan Design Expert untuk Optimasi Komposisi Campuran Minyak Nabati sebagai Bahan Baku Sintesis Biodiesel. *J Tek Kim dan Lingkung.* 2017;1(1):11–6.

66. Aprilya A, Rahmadevi R, Meirista I. Formulasi Nanoemulsi dengan Bahan Dasar Minyak Ikan (*Oleum iecoris Aselli*). J Sains dan Kesehat. 2021;3(3):370–5.
67. Sjarif M. Wasitaatmadja. Penuntun ilmu kosmetik medik. Jakarta: UI Press; 1997.
68. Miksusanti, Apriani EF, Bihurinin AHB. Optimization of Tween 80 and PEG-400 Concentration in Indonesian Virgin Coconut Oil Nanoemulsion as Antibacterial against *Staphylococcus aureus*. Sains Malaysiana. 2023;52(4):1259–72.
69. Romes NB, Wahab RA, Abdul Hamid M, Hashim SE. D-optimal design-assisted *Elaeis guineensis* leaves extract in olive oil-sunflower seed nanoemulsions: development, characterization, and physical stability. J Dispers Sci Technol. 2022;43(2):289–301.
70. Mehrandish S, Mirzaei S. Design of Novel Nanoemulsion Formulations for Topical Ocular Delivery of Itraconazole: Development, Characterization and In Vitro Bioassay. Adv Pharm Bull. 2022;12(1):93–101.
71. Monica MD. Optimasi Formulasi Serum Kosmetik Antiflek dari Ekstrak Rimpang Kunyit Talerang (*Hedychium coronarium* J. Koenig) Terstandarisasi. Universitas Andalas; 2020.
72. Kale SN, Deore SL. Solubility enhancement of Nebivolol by micro emulsion technique. J Young Pharm. 2016;8(4):356–67.
73. Ullah N, Amin A, Alamoudi RA, Rasheed SA, Alamoudi RA, Nawaz A, et al. Fabrication and Optimization of Essential-Oil-Loaded Nanoemulsion Using Box-Behnken Design against *Staphylococcos aureus* and *Staphylococcos epidermidis* Isolated from Oral Cavity. Pharmaceutics. 2022;14(8).
74. Momtaz S, Mapunya BM, Houghton PJ, Edgerly C, Hussein A, Naidoo S, et al. Tyrosinase inhibition by extracts and constituents of *Sideroxylon inerme* L. stem bark, used in South Africa for skin lightening. J Ethnopharmacol. 2008;119(3):507–12.
75. Moon J-Y, Yim E-Y, Song G, Lee NH, Hyun C-G. Screening of elastase and tyrosinase inhibitory activity from Jeju Island plants. EurAsian J Biosci. 2010;53(March):41–53.
76. Tu PTB, Tawata S. Anti-oxidant, anti-aging, and anti-melanogenic properties of the essential oils from two varieties of *Alpinia zerumbet*. Molecules. 2015;20(9):16723–40.
77. Handayani FS, Nugroho BH, Munawiroh SZ. Optimasi Formulasi Nanoemulsi Minyak Biji Anggur Energi Rendah dengan *D-Optimal Mixture Design* (DMD). J Ilm Farm. 2018;14(1):17–34.

78. Nasional BS. Sediaan Tabir Surya. SNI 16-439. Jakarta; 1996.
79. Christy GP, Arimurni DA, Wahyudi MDP, Martien R, Tunjung WAS. Formulation and Characterization of Kaffir Lime Oil Nanoemulsion. Biosci Biotechnol Res Asia. 2017;14(3):915–22.
80. Suciati T, Aliyandi A, Satrialdi. Development of transdermal nanoemulsion formulation for simultaneous delivery of protein vaccine and artin-m adjuvant. Int J Pharm Pharm Sci. 2014;6(6):536–46.
81. Saraung V, Yamlean P V, Citraningtyas G. Pengaruh Variasi Babis Karbopol dan HPMC Pada Formulasi Gel Ekstrak Etanol Daun Tapak Kuda(*Ipomoea pes-caprae*(L.) R. Br. dan Uji Aktivitas Antibakteri terhadap *Staphylococcus aureus*. 2018;7(3):220–9.
82. Mardhiani YD, Yulianti H, Azhary D, Rusdiana T. Formulasi dan Stabilitas Sediaan Serum dari Ekstrak Kopi Hijau (*Coffea Canephora*). Indones Nat Res Pharm J. 2018;2(2):19–33.
83. Putri CAP, Sani Ega Priani, Gita Cahya Eka Darma. Formulasi Nanoemulsi Mengandung Minyak Calendula (*Calendula officinalis*). Bandung Conf Ser Pharm. 2023;470–6.
84. Gupta S, Kesarla R, Omri A. Formulation strategies to improve the bioavailability of poorly absorbed drugs. Int Sch Res Not Pharm. 2013;2013:229–42.
85. Villiers MM, Aramwit P, Kwon GS. Nanotechnology in Drug Delivery. Springer. New York; 2009. 463 p.
86. Arifah N. Isolasi dan Elusidasi Struktur Senyawa Aktif Sebagai Penghambat Enzim Enzim Xantin Oxidase, Enzim Tirosinase, dan Enzim A-Glukosidase dari Lichen *Stereocaulon graminosum* SCHÄER. Universitas Andalas; 2022.
87. Jakimiuk K, Gesek J, Atanasov AG, Tomeczyk M. Flavonoids as Inhibitors of Human Neutrophil Elastase. J Enzyme Inhib Med Chem. 2021;36(1):1016–28.
88. Sahasrabudhe A, Deodhar M. Anti-hyaluronidase, anti-elastase activity of *Garcinia indica*. Vol. 6, International Journal of Botany. 2010. p. 299–303.
89. Kothapalli L, Bhosale TD, Thomas A. Seed Oils as Tyrosinase Inhibitors for the Treatment of Hyperpigmentation. Bentham Sci. 2024;20(2):124–31.
90. Chang TS. An updated review of tyrosinase inhibitors. Int J Mol Sci. 2009;10(6):2440–75.
91. Phongpradist R, Semmarath W, Kiattisin K, Jiaranaikulwanitch J, Chaiyana W, Chaichit S, et al. The in vitro effects of black soldier fly larvae (*Hermetia illucens*) oil as a high-functional active ingredient for inhibiting hyaluronidase, anti-oxidation benefits, whitening, and UVB protection.

